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Faces, Feelings, Words: Divergence Across Channels of Emotional Responding in Complicated Grief

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Recent evidence suggests that the inability to respond in a context appropriate manner earlier in bereavement is predictive of a protracted grief course with poorer adjustment following the loss (Coifman & Bonanno, 2010). However, little is known about the emotional behavior of adults later in bereavement and whether emotional responding becomes dsyregulated across other channels. An impressive body of evidence in the schizophrenia literature demonstrates a marked disconnection between observable displays of emotion and experienced affect within individuals diagnosed with schizophrenia (e.g., Kring & Moran, 2008). On the basis of this influential work, we examined the emotional responses of a sample of bereaved adults who lost a spouse 1.5–3 years previously. One bereaved group had complicated grief (CG) and the other was relatively asymptomatic. We used an idiographic task where participants discussed their relationships with their spouse and current attachment figure in contexts of conflict and intimacy. We measured emotional responses across 3 channels: self-reported affect, facial expressions, and emotional word use. Individuals within the CG group were less facially expressive across contexts than the asymptomatic group but in some contexts reported experiencing greater affect and used more negative emotion words. These findings suggest that complicated grief in later bereavement is characterized by a disassociation between emotional responding across channels, with context insensitive responding, restricted to facial displays of emotion.

Keywords: complicated grief, facial coding, emotion, context sensitivity, bereavement

The death of a spouse is an emotionally complex experience that can evoke distress and intense sadness. Although bereavement is a highly stressful event that most of us will encounter in our lifetime (Stroebe, Hansson, Stroebe, & Schut, 2001), there are marked individual differences in the intensity and duration of grief reactions (Bonanno, 2004; Bonanno & Kaltman, 2001). Although most bereaved persons are resilient, experiencing minimal disruptions in functioning a notable subset, approximately 10% to 15% of bereaved individuals, continue to experience considerable distress for several years or longer following the loss (Bonanno et al., 2002). Recently, this pattern has come to be known as complicated grief (CG) (Bonanno, Neria, et al., 2007; Horowitz et al., 1997; Lichtenthal, Cruess & Prigerson, 2004; Prigerson et al., 2009).

Owing to the considerable public health cost of CG (GRIEF, 2003; Prigerson et al., 2009), researchers have sought to understand the factors that might predict individual differences in grief course. One of the more promising areas of research has pertained to the flexible regulation of emotion across contexts (Bonanno & Burton, 2013). Research studies have shown for example that emotional responses that are insensitive to context *early* in bereavement predict a more protracted grief course (Coifman & Bonanno, 2010; Coifman, Bonanno, & Rafaeli, 2007).

However, scant empirical research has been devoted to the study of the emotional behavior of bereaved individuals *later* in bereavement, after CG has clearly developed, and whether emotional context insensitivity is best understood as a factor in the development of CG, an ongoing feature that characterizes the disorder, or a propensity that worsens or becomes more pronounced over time. Moreover, little is currently known about how emotion manifests in different response channels during bereavement, or whether the relation of context insensitivity to CG might vary by channel of emotional responding. Advances in these areas would hold important implications for intervention. To investigate these questions, in the current study we examined context sensitive emotion across three channels of responding in bereaved individuals who had lost a spouse 1.5 to 3 years previously. The bereaved sample was selected from a larger pool of bereaved subjects to create two demographically similar groups, one with CG and one that was relatively asymptomatic.

Emotion and Bereavement

For decades the dominant clinical perspective in the bereavement literature highlighted the importance of "grief work" where healthy adaptation following the loss was posited to involve a sustained period of working through the cognitive and emotional meanings of the loss. Failure to successfully complete this work was assumed to result in pathological grief reactions (for reviews see Bonanno, 2009; Wortman & Silver, 1989). As research on bereavement accelerated, challenges to the presumed importance of grief work appeared on both conceptual (e.g., Wortman &

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Silver, 1989) and empirical (e.g., Bonanno et al., 1995; Stroebe & Stroebe, 1991) grounds. Initial research on emotion and bereavement showed, for example, that the prevalence of negative emotion early in bereavement not only did not appear to foster adjustment but actually predicted a more protracted grief course, while expressions of positive emotion, previously assumed to indicate denial of grief work, were associated with a more expedient recovery (Bonanno & Keltner, 1997; Keltner & Bonanno, 1997).

In an attempt to integrate these and other findings, Stroebe and Schut (1999) proposed an influential dual-process model of bereavement that emphasized oscillatory patterns of focusing on and beyond bereavement related emotion. Consistent with this perspective, more recent bereavement research has provided compelling evidence both for the adaptive value of positive emotion (e.g., Ong et al., 2011) and for the oscillatory nature of positive and negative emotional responses, with more extreme reactions associated with protracted grief outcomes (Bisconti, Bergeman, & Boker, 2004; Coifman et al., 2007). One important implication of this evidence is that normal recovery from bereavement requires an ability to modulate emotion across different contexts whereas bereaved people with CG may suffer from an inability to modulate or insensitivity to contextual factors (Bonanno & Burton, 2013; Coifman & Bonanno, 2009).

Context Insensitivity and Psychopathology

A widely accepted view of emotions is that they are context bound and most likely to promote adaptation when they are enacted in the situational contexts for which they are presumed to have evolved (Coifman & Bonanno, 2009; Keltner & Haidt, 1999; Tooby & Cosmides, 1990). For example, the expression of sadness in bereavement can elicit sympathy and foster support from others to help the bereaved deal with the loss. However, expressions of sadness or, for that matter, positive emotion in inappropriate contexts (e.g., laughing when a friend is upset) can disrupt social bonds. This inability to respond in a context sensitive manner has been viewed as a form of emotion dysregulation (Cole, Michel, & Teti, 1994) that in extreme forms is linked to the etiology of pathology (Davidson, 2000; Kring, 2008).

Contemporary emotion researchers have increasingly emphasized the critical role of context in emotional responding (Aldao, 2013; Bonanno & Burton, 2013). A bulk of this research emanated in the depression literature (Rottenberg & Gotlib, 2004; Rottenberg & Vaughan, 2008) and findings that depressed individuals were less able to modulate emotion behaviors across contexts. In other words, depressed individuals exhibited constricted expressive emotional behavior across both positive and negative emotional contexts (Gehricke & Shapiro, 2000; Gehricke & Shapiro, 2001; Reed, Sayette, & Cohn, 2007; Rottenberg, Kasch, Gross, & Gotlib, 2002). The inability to respond across situational contexts is suggested to have deleterious effects on interpersonal processes, leading to impairments in social relationships (Rottenberg & Vaughan, 2008).

As the maintenance of social bonds and support is key in recovery from grief, the construct of emotion context insensitivity has recently been applied to bereavement to help elucidate how emotion dsyregulation may lead to the development of CG. Using a longitudinal design, Coifman and Bonanno (2010) examined emotional responses in recently bereaved individuals as they spoke about their loss, as well as recent positive and negative life events unrelated to the loss. Bereaved individuals who were initially depressed but still able to modulate their emotional responses in a manner sensitive to context had improved adjustment at 18 months postloss whereas depressed bereaved who did not modulate across contexts were still depressed at 18 months.

Although this research suggests context insensitive emotion behavior may be a precursor to bereavement related pathology, little is currently known about whether or how this phenomenon might change across the course of bereavement. It is possible, for example, that context sensitive responding may be crucial only in the early months of bereavement, as a regulatory phenomenon people use to cope with the early stress of loss. However, there is some research to suggest that flexible emotion responding may have a trait like quality (Westphal, Seivert, & Bonanno, 2010). If context sensitivity persists, then an important question becomes whether it continues to characterize bereavement-related pathology or perhaps becomes even more pronounced at later points in bereavement. By the same token, relatively little is known about context sensitive or insensitive responding during bereavement across different channels of emotion, or whether deficits in one channel of responding are apparent in other channels of responding.

Divergence Across Channels of Emotional Responding

Emotions manifest in multiple response channels, most prominently as affective experience, facial expression and physiological responses that serve a number of intra- and interpersonal functions (Mauss, Levenson, McCarter, Wilhelm, & Gross, 2005). Divergence in emotional responding across channels has been implicated in emotional disturbances that can negatively affect relationships and social interactions (Berenbaum et al., 2003; Kring, 2010; Walker, Skowronski, Gibbons, Vogl & Thompson, 2003). A good deal of evidence indicates, for example, that depressed individuals display reduced facial expressions of emotion compared with nondepressed individuals while self-reporting similar affective experiences (Gehricke & Shapiro, 2000; Gehricke & Shapiro, 2001; Sloan, Strauss, Quirk, & Sajatovic, 1997). Relatedly, a number of influential studies in schizophrenia research have indicated that, contrary to earlier beliefs, individuals with schizophrenia display *reduced* (Gaebel & Wolwer, 2004; Kring & Moran, 2008) rather than *flattened* expression of emotion. In one study, for example, patients with schizophrenia were shown both positive and negative film stimuli and asked to report their emotional experience. Compared with healthy controls, patients with schizophrenia were less expressive yet reported experiencing as much, if not more, affect than the controls (Kring, Kerr, Smith, & Neale, 1993).

Over the past two decades, these findings have been consistently replicated (Berenbaum & Oltmanns, 1992; Gaebel & Wolwer, 2004; Kring & Neale, 1996) with evidence indicating that within this disorder, there is in fact an emotional "disconnect" between the outward display and affective experience of emotion (for a review see Kring, 2010). Other research provides evidence for a comparable disconnection between the expression of emotion and affective experience in eating disorders (Davies, Schmidt, Stahl, & Tchanturia, 2011) and personality disorders (Renneberg, Heyn, Gebhard, & Bachmann, 2005). Suggestive evidence for discontinuities across emotion channels has also been found using verbal

narrative data (Capps & Bonanno, 2000; Gruber & Kring, 2008). In depression, the intensity of the sad memories discussed in a narrative task predicted increased depressive symptoms at a 1-year follow-up (Rottenberg et al., 2005) while in the context of bereavement, individuals who recounted narratives that displayed greater overall negative content had a more prolonged grief course at later assessments (Capps & Bonanno, 2000).

The Current Investigation

Extending these findings, in the current study we considered whether bereavement-related psychopathology might be associated with divergent patterns of responding across distinctive emotional channels. Considerable research has investigated emotional responding early in bereavement (Bisconti, Bergeman, & Boker, 2004; Capps & Bonanno, 2000; Keltner & Bonanno, 1997; Stroebe, Stroebe, Schut, Zech, & van den Bout, 2002,). However, to our knowledge no previous studies have examined multiple channels of emotional behavior later in bereavement once bereavement-related pathology had fully developed. Accordingly, we examined emotional responding among two groups: bereaved who had lost their spouse between 1.5 and 3 years earlier and who met diagnostic criteria for CG and a comparable group of bereaved individuals who had lost their spouse during the same period but who were relatively asymptomatic. We examined four contexts in a 2 × 2 matrix using an idiographic laboratory interview where participants discussed moments of conflict and intimacy with their spouse and with another current (i.e., living) attachment person. To assess how context effects may have manifested, we examined three channels of emotional responding, self-reported affective experience, facial expressions of happiness, sadness, anger, and verbal emotional word use.

Using these data, we predicted that overall bereaved participants with CG would evidence relatively less ability to modulate their facial displays of emotion across contexts compared with the asymptomatic bereaved group. Additionally, extrapolating from research on depression and schizophrenia, we anticipated divergent effects across channels of emotional responding. Specifically, we predicted that CG participants would display relatively less emotion in facial expressions across contexts, while reporting greater affective experience or using more negative emotion words in their verbal narratives than asymptomatic bereaved participants. We also examined whether the CG participants might show greater sensitivity to context in these channels. Although we did not make specific predictions, given that one of the diagnostic criteria for CG is intense emotional reactivity to memories of the deceased, we explored whether self-reported affect and emotion word use might be increased in contexts when CG participants discussed the deceased spouse. Additionally, given that a cardinal feature of CG is a pervasive yearning for the deceased spouse, we explored whether the CG group would use higher frequencies of past verbs compared to the asymptomatic group across tasks.

In secondary analyses, we considered the prevalence of comorbidity between complicated grief and major depressive disorder (MDD), and explored whether our findings were specific to the diagnosis of complicated grief. Finally to examine whether individual differences in the quality of the conjugal relationship may have informed these results, we included measures of dyadic adjustment and attachment quality in these analyses.

Method

Participants and Procedure

We recruited bereaved participants between the ages of 25 and 65 from the New York City area. Conjugally bereaved persons were contacted via letters mailed based on public death notices. Letters informed potential participants about the details of the study and instructed them to contact the researchers to obtain additional information or participate. The study was also publicized through bereavement support group, fliers, and Internet advertisements. Inclusion criteria from these sources requested that potential participants use English as their primary language, and had been married to or living with their partner for at least 3 years. The death of spouse must have occurred within 1.5 to 3 years for study inclusion. It was requested that those interested in participating contact the researchers via phone or e-mail for additional study information and to determine eligibility. Participants with evidence of Axis I psychopathology or a history of substance abuse prior to the death for bereaved participants were excluded.

Sixty participants were enrolled in the study. The sample was predominantly female (62.1%) mean age was 50.62 (SD = 8.06) and the mean length of marriage was 19.53 years (SD = 12.27). Participants in this sample self-identified as White (63.3%), African American (21.7%), Hispanic (8.3%), and Asian American, (5.0%). Most participants (36.7%) attended some college, 26.7% achieved a bachelor's degree, and 25.0% obtained a master's or professional degree.

Participants completed written informed consent procedures and a number of standardized self-report questionnaires by mail before taking part in the study. Two, 2-hr experimental sessions consisting of interviews and computerized tasks were scheduled within 2 weeks of each other. Participants were paid $200 for their participation. During the first session, participants completed a structured clinical interview, semistructured narrative interview regarding loss and nonloss related events and two experimental computer tasks. In the second session prior to completing additional experimental computer tasks, participants completed a semistructured interview about memories of specific events with their spouse and a current attachment figure. Here we report on the semistructured narrative interview from the second session.

Questionnaire Measures

Dyadic adjustment. We measured the quality of the conjugal relationship using the four-item Dyadic Adjustment Scale-4 (DAS-4). The DAS-4 assesses relationship satisfaction and is a brief version of the 32-item dyadic adjustment scale. In comparison with the full version, the DAS-4 has been shown to be as effective at predicting couple satisfaction and is significantly less contaminated by socially desirable responding (Sabourin, Valois, & Lussier, 2005). Respondents were asked to indicate using a 5-point scale ranging from 1 (*all the time*) to 5 (*never*) their agreement on four statements about their relationship with their spouse. Higher scores on the DAS reflect greater couple satisfaction.

Attachment style. To assess attachment style, we used the Experiences in Close Relationships–Revised Scale (ECR-R; Fraley, Waller, & Brennan, 2000). The ECR-R is a self-rating 36-item questionnaire measuring individual differences in attachment re-

lated anxiety and attachment related avoidance. Participants are asked to rate their agreement using a 7-point Likert scale the extent to which they agree or disagree with each statement. Consistent with established procedures (e.g., Bonanno & Mancini, 2012; Fraley et al., 2000), subscales of anxiety and avoidance were created. The two scales were moderately correlated ($r = .34$). The ECR-R questionnaire was developed based on criteria of item response theory and has demonstrated satisfactory internal consistency and validity (Sibley, Fischer, & Liu, 2005).

Structured Clinical Interview

Trained interviewers administered a structured clinical interview in the first experimental session. Bereaved participants were assessed for current symptoms (i.e., within the past 30 days) associated with complicated grief (Bonanno et al., 2007; Horowitz et al., 1997; Prigerson et al., 2009): strong yearning for the deceased; intense distress over symbolic reminders of the loss; preoccupation with thoughts about the loss; recurrent and intrusive recollections of the death event; recurrent regrets or self-blame about behavior toward the deceased; difficulty accepting the finality of the loss; marked loneliness; pervasive sense that life is meaningless; unusual difficulty developing new relationships; efforts to avoid thoughts, feelings, or conversations associated with the loss; efforts to avoid activities, places, or people that arouse recollections of the loss (11 items, $\alpha = .82$). Interviewers received extensive training in administration procedures but were blind to the goals and hypotheses of the current study. For computation of interrater reliability, all interviews were videotaped, and each interviewer coded a randomly selected set of five additional interviews. Interviewers achieved adequate interrater reliability for the symptom items (average K = .91). Based on these data, we categorized bereaved participants with five or more CG symptoms ($n = 29$) in a CG group ($M = 7.24$, $SD = 1.74$) and bereaved participants with relatively few grief symptoms ($n = 31$; $M = 1.22$, $SD = 1.08$) into an asymptomatic bereaved group. The two groups were similar demographically to the nonbereaved group. A MANOVA to assess group effects for demographic characteristics (age, gender, level of education, length of marriage, and race) found no significant differences between the two groups (CG, asymptomatic).

Idiographic Interview Task

Participants returned to the laboratory approximately 2 weeks following the first visit for the idiographic interview task. The interviewer read a script informing the participants that they would be asked to speak about specific experiences they had with their spouse and with others. Participants were informed that there would be a specified period of time to respond to each question and that the interviewer would listen carefully, and interrupt only to ask clarifying questions or notify them that they could stop responding. Participants were informed that there were no correct answers and that we were interested in what their particular experiences might be like. Participants were asked to recall and recount in a fixed order, specific events in which there was: conflict with their deceased spouse; intimacy with their deceased spouse; conflict with other current attachment, and intimacy with other current attachment. For each interview segment participants were instructed to reflect and then describe the event and how they reacted to it at the time of its occurrence. When they indicated they were ready, the interviewer instructed them to begin. The interviewer halted participant's recounting of the event after 3 min.

Self-Reports of Emotion

After each interview topic, participants were asked to rate using a 5-point Likert scale from 1 (*very slightly or not at all*) to 5 (*extremely*) the extent to which they felt a number of emotions using the Positive and Negative Affect Schedule (PANAS; Tellegen, Watson, & Clarke, 1988). The PANAS is composed of two scales, 10 items for positive emotion (interested, excited, strong, enthusiastic, proud, alert, inspired, determined, attentive, active) and 10 items for negative emotion (distressed, upset, guilty, scared, hostile, irritable, ashamed, nervous, jittery, afraid) designed to assess subjective emotional experience along two factors, positive activation and negative activation. Self-reports were then aggregated as an approximate measure of positive and negative emotion for each interview topic. To encourage honesty in responding, participants were asked to place the rating forms face down on an adjacent table and were informed that the interviewer would not view their responses. Seven participants misunderstood or failed to complete the response form, leaving complete self-report data for 53 participants.

Facial Coding

Videotaped recordings of participant's behavior during the conflict and intimacy interview were coded for both negative (sadness, anger) and positive (Duchenne smiles) facial displays using the Facial Action Coding system (FACS, Ekman et al., 2002), an observer based system of facial expression measurement. The reliability and validity of the FACS have been demonstrated in prior investigations (Jakobs, Manstead, & Fischer, 2001; Reed, Sayette, & Cohn, 2007; Scherer & Ellgring, 2007). All coders had successfully completed a FACS training examination attaining an agreement ratio of at least .70 and had been certified in the FACS procedures (Ekman et al., 2002). Comprehensive coding, where every action unit (AU) present within the video-taped segment is coded allowing for a more in depth, fine grained analysis of facial behavior (Cohn, Ambadar, & Ekman, 2005) was completed by two graduate students and the author (ED). The tapes were coded without sound and coders were blind to condition (conflict/intimacy, spouse/other), participant's grief symptoms, bereavement status, and self-reports of emotion. The FACS criteria were used to code facial expressions of sadness, anger, and happiness (Duchenne smiles) on three dimensions: frequency, intensity, and duration. Frequency was a simple count of each observable AU per minute and coders scored the intensity of each muscle movement on a 6-point scale, from 0 = *absent*, 1 = *trace*, 3 = *moderate intensity*, 5 = *maximum intensity* based on criterion defined for AUs in Ekman, Friesen, & Hager (2002). Expression duration was measured in tenths of seconds (see Table 1).

On the basis of previous research (Messinger et al., 2001) in order to establish agreement on the beginning of facial actions, we implemented a 2-s time window within which each coder had to code the onset of a facial movement for the AUs to be counted as an agreement. To increase reliability and to provide a single index

Table 1
Magnitude Scores of Facial Expressions Displayed During Interview Tasks

	Asymptomatic $N = 31$				Complicated grief $N = 29$			
	Conflict		Intimacy		Conflict		Intimacy	
Facial expressions:	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Sadness								
Spouse	.554	3.46	.160	3.34	−.510	2.03	−.235	2.52
Other	.967	4.70	−.715	.000	−.545	.000	−.277	2.36
Anger								
Spouse	−.114	2.30	−.393	1.11	−.444	.451	.080	3.62
Other	.609	4.34	.076	3.34	−.300	1.05	−.061	2.50
Happiness								
Spouse	.017	2.60	.439	3.26	−1.35	.797	−.857	1.32
Other	.415	2.28	−.252	1.29	−.742	1.33	−.631	.930

Note. Italicized values represent standard deviation (SD) of magnitude score of facial expressions of anger, happiness, and sadness expressed across tasks by participants.

for data analyses, the frequency, intensity, and duration for each facial expression were converted to standardized *z* scores and then summed for each participant into a single magnitude score (Bonanno & Keltner, 1997). Summary magnitude scores are presented in Table 2. Following previous studies (e.g., Gruber et al., 2008; Messinger et al., 2001), we evaluated intercoder reliability by having all coders independently code 14% of the interview sessions. Intraclass correlations (ICC) were calculated for each AU and miscellaneous action units. ICC is the correlation of absolute agreement between two measurements and a more conservative measure of reliability (Shrout & Fleiss, 1979). Overall agreement for this subset of participants was .86. Intercoder agreement was .78 for upper face action units, .83 for lower face action units, and .97 for miscellaneous action units. Reliability was adequate between coders. Facial data were available for all 60 participants.

Emotion Word Count

Transcribed narratives from the idiographic interview task were analyzed using the Linguistic Index and Word Count program (LIWC; Pennebaker et al., 2007). LIWC searches individual text files (or in the present study, files of each participants transcribed interview narratives) and computes the percentage of words in a transcribed interview that fit into particular categories. Each of the LIWC categories are composed of words related to several dozen categories independently evaluated and agreed upon by raters. The LIWC program includes 80 categories; however, the present analyses focused on the following categories: positive emotion (e.g., love, nice, sweet), negative emotion (e.g., hurt, ugly, nasty), anger (e.g., hate, kill, annoyed), sadness (e.g., crying, grief, sad) and death-related words (e.g., bury, coffin, kill). Audio recordings were unintelligible for five participants, leaving complete narrative data for 55 participants.

Results

Self-Reported Positive and Negative Affect

The mean scores for the positive (10 items) and negative (10 items) subscales of the PANAS were compared in a repeated measures PANAS subscale (positive vs. negative) × topic content (conflict vs. intimacy) × topic person (spouse vs. other attachment) × group (CG, asymptomatic) ANOVA. There was a significant main effect for PANAS subscale (positive vs. negative), $F(1, 53) = 70.27$, $p < .01$, $\eta_p^2 = .570$, with participants reporting more positive than negative affect. There was also a main effect for topic condition, $F(1, 53) = 4.48$, $p < .05$, $\eta_p^2 = .078$, with participants reporting greater overall affect in the intimacy condition compared with the conflict condition. These effects were qualified by a significant interaction between PANAS subscale and topic condition, $F(1, 53) = 25.21$, $p < .01$, $\eta_p^2 = .322$. A simple effects test revealed that participants reported experiencing significantly more positive affect when discussing intimacy ($M = 31.39$, $SE = 1.28$), $p < .001$, than when discussing conflict ($M = 28.10$, $SE = 1.22$) and significantly greater negative affect in the conflict task ($M = 18.17$, $SE = .865$), $p < .001$, compared with when discussing intimacy ($M = 16.71$, $SE = .895$). Finally, a three-way interaction between topic content (conflict vs. intimacy), topic person (spouse vs. other), and group (CG, asymptomatic), $F(1, 53) = 5.47$, $p < .05$., $\eta_p^2 = .094$ was revealed. Tests of simple effects indicated that the CG group reported experiencing significantly more overall

Table 2
Means and Standard Deviations for Intensity of Self-Reported Affect Following Each Interview Topic

	Asymptomatic $N = 31$				Complicated grief $N = 29$			
	Conflict		Intimacy		Conflict		Intimacy	
Positive and negative affect (PANAS)	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Spouse								
Positive affect	28.35	9.10	31.03	10.86	27.59	9.81	31.81	10.40
Negative affect	19.21	8.10	16.71	6.73	16.25	5.08	16.88	7.10
Other								
Positive affect	28.57	10.73	31.67	9.47	27.88	9.81	31.03	10.37
Negative affect	18.57	7.28	17.53	9.09	18.66	8.10	15.70	6.37

Note. Italicized values represent standard deviation (SD) of magnitude score of facial expressions of anger, happiness, and sadness expressed across tasks by participants.

affect in the conflict with other condition ($M = 23.27$, $SE = 1.23$), $p < .001$, compared with when discussing conflict with spouse ($M = 21.92$, $SE = 1.07$), and the asymptomatic group showed no differences across context. Means, standard deviations, and effect sizes, reported as partial eta squared (η_p^2), are listed in Table 2.

Facial Expressions of Emotion

Sadness. The same ANOVA as above was repeated using magnitude scores for facial displays for sadness (AU6 + AU15). There were no significant main effects. However, there was a significant topic (conflict vs. intimacy) by group interaction, $F(1, 58) = 5.20$, $p < .05$, $\eta_p^2 = .082$. Tests of simple effects revealed that the asymptomatic group expressed significantly greater ($p = .01$) sadness in the conflict condition ($M = .760$, $SE = .481$) compared with the CG group ($M = -.528$, $SE = .498$). This difference suggests that the asymptomatic group is expressing overall greater displays of sadness when discussing conflict compared with the CG group. The CG group displayed relatively few expressions of sadness across topic condition thus differences within this group were not significant

Possible moderators of sad facial expression. We considered that one possible explanation for the greater overall facial expressions of sadness within the asymptomatic group was due to conflicted or maladjusted relationships with their spouse. To explore this possibility, we compared perceived adjustment in the relationship with the spouse (DAS) across groups (CG, asymptomatic bereaved). This analysis did not approach significance, $F(1, 58) = 1.10$, $p = .298$. Another possible explanation we considered was that patterns of sadness facial display were driven by attachment style. Analysis of group differences in anxious and avoidant attachment revealed no significant group difference in attachment scores.

Happiness (Duchenne smiles). An ANOVA for the magnitude of Duchenne smiles (AU6 + AU12) revealed a significant main effect for group, $F(1, 58) = 7.36$, $p < .01$. The asymptomatic group displayed greater overall facial expressions of happiness than the CG group. There was also a significant interaction between topic content (conflict vs. intimacy) by person condition (spouse vs. other), $F(1, 58) = 3.79$, $p < .05$, $\eta_p^2 = .061$. Tests of simple effects revealed significantly greater ($p = .05$) facial expressions of happiness when discussing a conflict experience with a current living attachment ($M = -.164$, $SE = .243$) compared with when discussing a conflict experience with the deceased spouse ($M = -.669$, $SE = .252$). These results indicate that the asymptomatic participants displayed greater overall expressions of Duchenne smiles (genuine happiness) than the CG group across all topics. In addition, significantly more facial expressions of happiness were displayed when discussing a conflict with a current living attachment.

Anger. An ANOVA for the magnitude of facial displays of anger (AU4 + AU5 + AU7 + AU23/24 revealed no significant main effects.

Emotion Words

We conducted separate ANOVAs for the percentage of negative emotion words, positive words, sadness words, anger words, death-related words, and verbs indicative of past, present, and future.[1] For negative emotion words, a main effect emerged for topic, $F(1, 55) = 34.45$, $p < .01$, $\eta_p^2 = .385$ with greater overall negative emotion words spoken in the conflict condition. A main effect for group, $F(1, 55) = 15.56$, $p < .01$, $\eta_p^2 = .221$ was revealed. The CG group used greater overall negative emotion words compared with the asymptomatic group. A marginally significant two-way interaction between person condition (spouse vs. other) and group emerged, $F(1, 55) = 2.62$, $p = .10$, $\eta_p^2 = .047$. Test of simple effects indicated that the CG group used significantly greater ($p = .01$) negative emotion words when discussing conflict ($M = 2.75$, $SE = .164$) compared with the asymptomatic group ($M = 2.05$, $SE = 1.61$) and significantly greater ($p = .01$) negative emotion words when discussing intimacy ($M = 1.95$, $SE = .170$) than the asymptomatic group ($M = 1.19$, $SE = .167$).

For positive emotion words, a main effect for topic emerged, $F(1, 56) = 24.88$, $p < .01$, $\eta_p^2 = .308$ with greater overall positive words spoken in the intimacy condition. This effect was qualified by a significant two-way interaction between topic (conflict vs. intimacy) and group, $F(1, 56) = 4.55$, $p < .05$, $\eta_p^2 = .075$. Test of simple effects indicated that the CG group used greater overall positive words when discussing intimacy ($M = .652$, $SE = .084$) than the asymptomatic groups. For sad words, a significant main effect emerged for group, $F(1, 55) = 10.98$, $p < .01$, $\eta_p^2 = .166$. The CG group used greater overall sadness related words than the asymptomatic group. For anger, a significant main effect emerged for group, $F(1, 55) = 19.36$, $p < .01$, $\eta_p^2 = .260$. The CG group used greater overall anger emotion words than the asymptomatic group. A main effect for topic also emerged, $F(1, 55) = 56.78$, $p < .01$, $\eta_p^2 = .508$ with greater overall anger words spoken in the conflict condition. The anger main effect was qualified by a marginally significant two-way interaction between group (asymptomatic, CG) and topic (conflict vs. intimacy), $F(1, 55) = 3.53$, $p = .06$, $\eta_p^2 = .060$. Tests of simple effects revealed that the CG group used greater overall anger words ($M = 1.64$, $SE = .136$) in the conflict condition than the asymptomatic group ($M = .926$, $SE = .134$). An ANOVA for the percentage of death-related words revealed no significant main effects or interactions. Means and standard deviations are reported in Table 3.

For past tense (e.g., need, miss, care, depend), a main effect emerged for person $F(1, 52) = 3.94$, $p < .05$, with greater percentage of past tense words used when discussing spouse. For

[1] In the conflict with spouse condition, the CG group used a total of 52 positive emotion words, 91 negative emotion words, 204 anger words, 50 sad words, and 18 death-related words. The asymptomatic group used a total of 59 positive emotion words, 61 negative emotion words, 127 anger words, 41 sad words, and 17 death-related words. In the intimacy with spouse condition, the CG group used a total of 368 positive emotion words, 184 negative emotion words, 36 anger words, 45 sad words, and 27 death-related words. The asymptomatic group used 404 positive emotion words, 129 negative emotion words, 20 anger words, 29 sad words, and 19 death-related words. In the conflict with other condition, the CG group used a total of 296 positive emotion words, 342 negative emotion words, 153 anger-related words, 56 sad words, and 17 death-related words. The asymptomatic group used 321 positive emotion words, 323 negative emotion words, 140 anger words, 48 sad words, and 34 death-related words. In the intimacy with other condition, the CG group used 451 positive emotion words, 214 negative emotion words, 52 anger words, 50 sad words, and 26 death-related words. The asymptomatic group used 371 positive emotion words, 210 negative emotion words, 39 anger words, 28 sad words, and 35 death-related words.

Table 3
Means and Standard Deviations for Percentage of Semantic Words Used During Interview Topics

	Asymptomatic $N = 31$				Complicated grief $N = 29$			
	Conflict		Intimacy		Conflict		Intimacy	
Word categories	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Spouse								
Sadness	.035	*.046*	.016	*.032*	.050	*.060*	.047	*.065*
Positive emotion	.034	*.038*	*.053*	*.046*	.020	*.026*	.065	*.076*
Anger	.084	*.057*	.031	*.065*	1.68	*1.31*	.043	*.053*
Negative emotion	1.96	*.092*	1.15	*1.11*	2.93	*1.61*	2.10	*1.21*
Other								
Sadness	.032	*.036*	.025	*.046*	.050	*.047*	.040	*.048*
Positive emotion	.028	*.029*	.050	*.056*	*.024*	*.032*	.065	*.055*
Anger	1.01	*.086*	.023	*.039*	1.60	*1.08*	.068	*.080*
Negative emotion	2.13	*.099*	1.23	*1.17*	2.58	*1.20*	1.79	*1.61*

Note. Italicized values represent standard deviation (SD) of magnitude score of facial expressions of anger, happiness, and sadness expressed across tasks by participants.

present tense words (e.g., may, might, would), a main effect for topic emerged, $F(1, 52) = 4.17$, $p < .05$ with greater overall present tense words used when discussing conflict compared with intimacy. A main effect also emerged for person, $F(1, 52) = 4.179$, $p < .05$, with participants using greater present tense words when discussing current living attachment compared with spouse. A two-way interaction was revealed for person by group. Tests of simple effects indicated that the asymptomatic group used significantly more, $F(1, 25) = 4.35$ revision stated above. $p < .05$, present tense verbs when discussing other attachment ($M = 7.68$, $SE = .436$) compared with when discussing their spouse ($M = .589$, $SE = .395$). The ANOVA for the use of future tense words revealed no significant main effects or interactions. In each of these analyses, the effect for participant group was nonsignificant.

Major Depression and Alternative Categorization of CG

Using the *DSM–IV* TR diagnostic criteria for MDD, we created three groups, CG comorbid MDD, CG without MDD, and asymptomatic (neither CG or MDD). Only two participants met criteria for MDD but not CG, and those participants were excluded from further analyses. We then repeated the above analyses for the within-subjects facial displays of sadness and between-subjects variables of group status (CG comorbid with MDD, CG without MDD, and asymptomatic. A marginally significant interaction between topic (conflict vs. intimacy) and group emerged, $F(1, 55) = 2.58$, $p = .08$, $\eta_p^2 = .086$. Tests of simple effects indicated that the asymptomatic group displayed significantly greater ($p = .01$) facial expressions of sadness when discussing conflict ($M = .809$, $SE = .500$) compared with both the MDD group ($M = -.352$, $SE = .708$) and the CG group ($M = -.716$, $SE = .760$). The CG comorbid with MDD and CG alone groups did not differ significantly. Together, these analyses indicate context effects related to CG regardless of comorbidity or absence of comorbidity with MDD.[2]

Additionally, we explored whether an alternative categorization of CG based on Prigerson et al. (2009) might influence our findings. This diagnosis requires separation distress (e.g., yearning) and at least five other CG symptoms. Because our data were collected prior to announcement of proposed *DSM-V* criteria for CG, we had only obtained structured interview data on six of the nine CG items specified by Prigerson et al. (2009). Using these data, however, we were able to create an alternate CG diagnostic category requiring separation distress and at least four other CG symptoms. The alternative CG diagnosis captured almost all (26 of 28) participants we had previously categorized as CG. When we repeated the facial displays of sadness × topic content × topic person × diagnostic group ANOVA using the alternative CG category, we again observed a significant topic content (conflict, intimacy) × group interaction, $F(1, 56) = 3.88$, $p < .05$, $\eta_p^2 = .065$. The asymptomatic group again expressed significantly more sadness ($M = .714$, $SE = .483$) when discussing conflict with their spouse compared to the alternate CG group ($M = -.506$, $SE = .536$).

Discussion

In this study we sought to advance knowledge about the emotional behavior of bereaved individuals with CG. We examined context sensitive emotional responding across multiple response channels: behavioral (facial expressions), experiential (self-

[2] Additional analyses using the alternate CG categorization were repeated for the subscales of the PANAS, facial displays of happiness, anger, and emotion word use. A marginally significant three way interaction between PANAS subscale (positive, negative) × person (spouse, other) × alternate group (CG comorbid with MDD, CG without MDD, and asymptomatic) emerged, $F(2, 50) = 2.62$, $p = .08$, $\eta_p^2 = .09$. Tests of simple effects indicated that the CG without MDD reported experiencing significantly greater ($p = .02$) negative affect when discussing spouse ($M = .25.10$, $SE = 1.53$) compared with both the CG co-morbid MDD group ($M = -.23.70$, $SE = 1.65$) and the asymptomatic group ($M = -23.70$, $SE = 1.65$). The CG comorbid with MDD and asymptomatic groups did not differ significantly. The ANOVA for facial displays of Duchenne smiles revealed a marginally significant interaction between topic (conflict, intimacy) × alternate group, $F(2, 55) = 2.78$, p =.07, $\eta_p^2 = .09$. Tests of simple effects revealed that the asymptomatic group displayed significantly greater Duchenne smiles ($M = .891$, $SE = .530$) during the conflict condition compared with the CG comorbid with MDD group ($M = -1.36$, $SE = .557$). The CG and CG comorbid with MDD groups did not differ significantly. The analyses for facial displays of anger using the alternate groups again revealed no significant main effects. For the percentage of negative emotion words used, as in the original analyses, a main effect emerged for topic, $F(1, 52) = 28.80$, $p < .01$, $\eta_p^2 = .356$, with greater overall negative emotion words used in the conflict condition. For positive emotion words a marginally significant two-way interaction between topic and group emerged, $F(2,53) = 2.55$, $p = .08$, $\eta_p^2 = .088$. Tests of simple effects indicated that the CG group used marginally significantly more $p = .08$ ($M = .315$, $SE = .054$) positive emotion-related words than both the asymptomatic ($M = .285$, $SE = .040$) and CG comorbid ($M = .125$, $SE = .058$) in the conflict condition. For sad words, a significant main effect emerged for group, $F(2,52) = 8.73$, $p < .01$, $\eta_p^2 = .252$. The CG comorbid with MDD group used significantly greater sadness-related words. For anger words, a significant main effect for group emerged for percentage of anger words used, $F(2,52) = 1.98$, $p < .01$, $\eta_p^2 = .29$. This effect was qualified by a marginally significant interaction between topic × alternate group, $F(2,52) = 2.58$, $p = .08$, $\eta_p^2 = .09$. Tests of simple effects revealed that the CG comorbid with MDD group used greater overall percentage of anger related words ($M = 1.95$, $SE = .197$) when discussing conflict compared to the asymptomatic group ($M = .956$, $SE = .134$). The CG comorbid and CG groups did not differ significantly. An ANOVA for the percentage of death-related words again failed to yield any significant main effects or interactions.

reported affect), and verbal narrative data (emotion word count) in a sample of bereaved adults who had lost a spouse 1.5 to 3 years earlier, approximately half who were suffering from complicated grief and half who were not symptomatic. To create contexts we used an idiographic laboratory task where participants were instructed to speak about their relationships with their spouse and with another attachment figure during a moment of conflict and a moment of intimacy.

Our findings were generally compatible with previous research on emotional processing in CG but also suggested a more nuanced view than indicated in previous research. Replicating and extending previous research conducted earlier in bereavement, prior to the onset of diagnosable CG (e.g., Coifman & Bonanno, 2010), we found that bereaved participants with CG later in bereavement showed relatively little emotion in their facial expressions and almost no variability in expressiveness across contexts. By contrast, asymptomatic bereaved participants were more expressive and more reactive to context. Consistent with our predictions, however, the CG group nonetheless evidenced greater emotional responding in their self-report and in their use of emotion words. Moreover, in these effects the CG group also evidenced greater sensitivity to context.

Although self-reported affect was generally sensitive to context across participants, only the CG group evidenced unique context effects in affect. Specifically, CG participants reported experiencing greater anger when they spoke about conflict with a living attachment figure and less when they spoke about conflict with their deceased spouse. Similarly, although emotion word use generally varied by context across participants, the CG group was again the only group to show unique context effects. The CG group used more sadness-related words overall, and used more anger words in the conflict with other condition, relative to the asymptomatic bereaved group.

There were several surprising findings. For example, the CG group used significantly more sadness related words overall compared with other groups, and did not modulate their use of sad words by context. This may have occurred in part because sadness is such a pervasive aspect of CG and may be how people with CG discuss *all* topics. We also explored the possibility that CG participants might express greater anger in the specific context of discussing a current attachment figure. In an early study, the expression of anger in early bereavement predicted poorer health and adjustment later in bereavement (Bonanno & Keltner, 1997). Interestingly, although CG participants in our study did not show context effects for facial expressions of anger, they did use significantly greater anger related *words* in the conflict condition and significantly *more* positive emotion words when discussing intimacy compared with the asymptomatic group.

Additional findings in the current study further support the link between context sensitive responding and bereavement-related adjustment. As expected, asymptomatic individuals expressed significantly greater displays of sadness when discussing conflict. Also, consistent with recent research and theory indicating that the ability to display positive emotions in context of adverse circumstances helps regulate or undo negative affect (Keltner & Bonanno, 1997; Fredrickson, 2001), the asymptomatic bereaved displayed significantly greater displays of happiness (Duchenne smiles) than the CG group when discussing moments of conflict with their spouse. Facial expressions of happiness within the CG group across topics were relatively restricted.

This finding suggests, consistent with previous studies, (Bonanno, Wortman, & Nesse, 2004), that for bereaved adults with CG, there is an inability to gain comfort when recalling events related to their deceased spouse. Thus, in the context of bereavement and adjustment, individuals with CG continue to experience intense yearning for the deceased and are seemingly unable to display facial expressions of positive emotion when recalling conflicted moments. These findings follow previous research associating long-term adjustment with the ability to shift emotional responses in accordance with changing contextual demands (Coifman & Bonanno, 2010; Rottenberg, Gross, & Gotlib, 2005). Given the relative lack of facial displays for positive and negative emotion within the CG group, these findings are compelling and in combination provide even stronger evidence for the idea that complicated grief in later bereavement is characterized by a pronounced dissociation between emotional responding *across* channels.

Why might this be the case? The expression of emotion in the context of bereavement is particularly important for several notable reasons. First, we use facial expressions to infer what emotion another person is feeling (Banse & Scherer, 1996; Ekman, 1993). Facial expressions of sadness lead to the perception that the expresser is in need of help and comfort, evoking empathy and caregiving from others during a time of considerable distress (Bonanno, 2009). Second, facial expressions of emotions facilitate the formation and maintenance of social bonds (Keltner & Haidt, 1999). In CG the disjunction between the expression of emotion, affective experience and verbal emotional descriptions may exacerbate social difficulties, including the perceived loss of support and inability to maintain current relationships. Indeed, the absence of observable displays of emotion in contexts where it is expected may in fact elicit negative reactions from others, disrupting relationships (Butler et al., 2003; Hooley, Richters, Weintraub, & Neale, 1987; Gottman & Levenson, 2002).

Another possible explanation is that intense and prolonged expressions of negative emotions, such as anger and sadness, at earlier points in bereavement (Bonanno & Keltner, 1997; Bonanno et al., 1999) may have driven away important sources of emotional support and lead to social withdrawal behavior. The persistent expression of distress and negative emotion is taxing to a person's social support system. Seminal research by Coyne (1976) suggested, for example, that although displays of distress and depression may temporarily elicit support from others, among individuals experiencing major depressive episodes prolong and aversive expressions of distress and depression ultimately tend to cause others in a depressed person's milieu to avoid or reject them. For people with CG, family and friends may have originally been highly motivated to support the person's recovery but ultimately became frustrated and rejecting when negative displays of emotion persisted (Lehman, Ellard, & Wortman, 1986; Coyne, Wortman, Lehman, & Turnbull, 1985). Thus, the prolonged expression of negative affect in CG may have led to social isolation and withered support networks (Butler et al., 2003; Campbell-Sills, Barlow, Brown & Hofmann, 2006; Coyne et al., 1985) and caused individuals with CG eventually to dampen their outward displays of emotion.

From the vantage point of regulatory flexibility (Bonanno & Burton, 2013), the consequences of various forms of emotion regulation will tend to vary across individuals and contexts (Aldao, 2013; Gross & Thompson, 2007). In this view, even avoidant behaviors are adaptive in some contexts. For example, the seeming avoidance of unpleasant emotion, as captured by affective-autonomic response dissociation (AARD), had been shown to predict better long-term adjustment during bereavement (Bonanno et al., 1995; Coifman, Bonanno, Ray, & Gross, 2007). By the same token, however, the perpetual reliance on any single regulatory strategy across contexts suggests inflexible regulatory habits and has been associated with poor health and pathology (Bonanno & Burton, 2013; Bonanno et al., 2004; Kashdan & Rottenberg, 2010). The habitual use of expressive suppression, for example, has been associated with poorer psychological adjustment and worse interpersonal functioning (Gross & John, 2003). When considered in this light, it is entirely plausible that the CG group chronically engaged in the suppression of the outward expression of both positive and negative emotion. Further, because the chronic suppression negative emotions has been associated with reduced positive and enhanced negative affect (Gross & John, 2003), this may result in a paradoxical persistence of the unwanted experiences of sadness or anger in later bereavement.

On the other hand, it is possible that a more global aspect of psychopathology is at work. Disassociations between the experience and expression of emotion appear to be an important transdiagnostic feature of psychopathology shared across various disorders. In fact, most evidence garnered through studies of schizophrenia have consistently demonstrated a dissociation between self-reported emotional experience and observable facial displays of emotion (for a review see Kring, 2008; Kring & Moran, 2008). Other investigations have suggested similar disconnections in depression (Sloan, Strauss, Quirk, & Sajatovic, 1997) and posttraumatic stress disorder (Wagner, Roemer, Orsillo, & Litz, 2003). Together, these studies suggest the utility of implementing a transdiagnostic approach in identifying and treating common mechanisms, such as disturbances in affect and emotion regulation that cut across a broad range of disorders (Kring, 2008).

Limitations

The current study boasted several strengths. Most notable was the assessment of multiple channels of emotional responding in a sample of conjugally bereaved adults, with and without diagnosable pathology. An additional strength, also considered below as a possible limitation, was that we allowed participants to describe their personal experiences (e.g., relationships with spouse and other), rather than attempting to elicit emotional reactions using more standardized stimuli. We employed a method (recounting of the individual's experience of a salient event) that evokes complex emotional states and enhances external validity (Capps & Bonanno, 2000; Gruber & Kring, 2008).

Despite these strengths, a number of limitations should be taken into consideration when interpreting our findings. First, the data from the current study is cross-sectional. It would have been informative, for example, to compare emotional response components across multiple channels at points both early and late in bereavement. Another potential limitation as we noted above was the idiographic interview task used to elicit emotional responses. This method, although allowing for spontaneous discourse and authentic emotion responses, affords considerably less experimental control over the *content* of the individual's response. For example, a possible alternative explanation to our findings may be that asymptomatic participants are not more emotionally expressive but merely recalled more emotionally evocative events related to the loss (e.g., conflict experiences with the deceased spouse or others related to the deceased's illness or death). We conducted exploratory analyses to examine possible temporal differences as a function of verb tense, which might get at this issue. However, none of the group effects were significant in these analyses. Further, the increased emotion in nonexpressed channels observed for CG participants suggests that they in fact recalled emotional experiences at least as emotional evocative as other participants.

Third, in a related vein, the concept of display rules (i.e., norms about who shows which emotion to whom and when; Ekman & Friesen, 1975), suggests the presence of an interviewer may have caused some participants to inhibit facial displays of emotion (Ekman, Friesen, & Ellsworth, 1972; Lee & Wagner, 2002; Jakobs et al., 2001). Similarly, researchers have argued that expressions of negative emotions (i.e., sadness) in nonintimate settings may elicit negative reactions (Hoover-Dempsey, Plas, & Walston, 1986). Therefore, it could be reasonably argued that a laboratory setting is nonintimate and that participants inhibited their facial expressions of emotion based on both the setting and presence of the interviewer. Clearly, these issues can only be fully addressed by replicating these findings using a more standardized approach, and we are currently pursuing this approach in our lab.

Forth, there was high comorbidity of CG with MDD. We attempted to control for this problem by examining differences between those individuals with CG who also met diagnostic criteria for MDD and those who did not. No differences were observed, suggesting that it was CG rather than depression that drove our findings. However, we were not able to fully examine this issue because we did not have a group of bereaved individuals with MDD but not CG or a nonbereaved comparison group. Moreover, the cell sizes were quite small when we made these additional categorizations and may have compromised power to detect meaningful effects. It will be important to examine this issue further in future research.

Clinical Implications

Within the context of the above limitations, the findings of the current study suggest several implications for the assessment and intervention of complicated grief. During bereavement, sad expressions cue others in the bereaved survivor's support network of their need for assistance and succor (Bonanno, 2009). Sadness, for example, has been linked to the elicitation of sympathy and caring behavior from others (Decety & Chaminade, 2003; Eisenberg et al., 1989). Conversely, the failure of individuals suffering from CG to display facial expressions of emotion may undermine the ability of others to respond sympathetically, or may even evoke contrary conflicted feelings in others (Decety & Chaminade, 2002).

Seminal work in the depression and schizophrenia literature provide intriguing evidence that within these disorders, lack of overt facial expressions of emotion may be construed by others as indicative that the expresser is disengaged which ultimately affects social interaction (Kring & Moran, 2008; Rottenberg & Vaughan,

2008). Recent research demonstrates that individuals with CG are less able to intentionally enhance or suppress their emotional expressions in response to evocative pictures (Gupta & Bonanno, 2011) and are unable to respond to the sad expressions of others, showing an attention bias away from sad faces when reminded of their deceased spouse (Bullock & Bonanno, 2013). This evidence, when coupled with our findings, suggests that for individuals suffering from CG, the ability to express emotion in the face become dysregulated. In other words, evidence from the present investigation further supports the idea that the experience of complicated grief disrupts normal patterns of emotional processing (Bonanno, 2009; Bonanno et al., 2008).

Considering the growing body of literature demonstrating the link between context sensitive responding and adaptation, our findings suggest that clinical interventions for individuals suffering from CG might focus on emotion regulation techniques to help bereaved individuals who continue to suffer from considerable distress following the loss maintain healthy interpersonal relationships and manage the long term stressors associated with the loss.

In conclusion, research on emotion context sensitivity and complicated grief is nascent. It is our hope that future research will aim to replicate and extend these findings by segueing into more nuanced investigations such as one we are currently exploring in which we are implementing experimental designs involving other physiological measures (e.g., EEG, EMG) and measures of individual differences to examine whether deficits across multiple components of emotion are evident earlier in bereavement.

References

Aldao, A. (2013). The future of emotion regulation research: Capturing context. *Perspectives on Psychological Science, 8,* 155–172. doi:10.1177/1745691612459518

Banse, R., & Scherer, K. R. (1996). Acoustic profiles in vocal emotion expression. *Journal of Personality and Social Psychology, 70,* 614–636. doi:10.1037/0022-3514.70.3.614

Berenbaum, H., & Oltmanns, T. F. (1992). Emotional experience and expression in schizophrenia and depression. *Journal of Abnormal Psychology, 101,* 37–44. doi:10.1037/0021-843X.101.1.37

Berenbaum, H., Raghavan, C., Le, H.-N., Vernon, L. L., & Gomez, J. J. (2003). A taxonomy of emotional disturbances. *Clinical Psychology: Science and Practice, 10,* 206–226. doi:10.1093/clipsy.bpg011

Bisconti, T. L., Bergeman, C. S., & Boker, S. M. (2004). Emotional well-being in recently bereaved widows: A dynamical systems approach. *Journals of Gerontology, 59,* P158–P167. doi:10.1093/geronb/59.4.P158

Bonanno, G. A. (2004). Loss, trauma, and human resilience. *American Psychologist, 59,* 20–28. doi:10.1037/0003-066X.59.1.20

Bonanno, G. A. (2009). *The other side of sadness: What the new science of bereavement tells us about life after loss.* New York, NY: Basic Books.

Bonanno, G. A., & Burton, C. L. (2013). Regulatory flexibility: An individual differences perspective on coping and emotion regulation. *Perspectives on Psychological Science, 8,* 591–612.

Bonanno, G. A., Galea, S., Bucciarelli, A., & Vlahov, D. (2007). What predicts psychological resilience after disaster? The role of demographics, resources, and life stress. *Journal of Consulting and Clinical Psychology, 75,* 671–682. doi:10.1037/0022-006X.75.5.671

Bonanno, G. A., Ho, S. M., Chan, J. C., Kwong, R. S., Cheung, C. K., Wong, C. P., & Wong, V. C. (2008). Psychological resilience and dysfunction among hospitalized survivors of the SARS epidemic in Hong Kong: A latent class approach. *Health Psychology, 27,* 659.

Bonanno, G. A., & Kaltman, S. (2001). The varieties of grief experience. *Clinical Psychology Review, 21,* 705–734. doi:10.1016/S0272-7358(00)00062-3

Bonanno, G. A., & Keltner, D. (1997). Facial expressions of emotion and the course of conjugal bereavement. *Journal of Abnormal Psychology, 106,* 126–137. doi:10.1037/0021-843X.106.1.126

Bonanno, G. A., Keltner, D., Holen, A., & Horowitz, M. J. (1995). When avoiding unpleasant emotions might not be such a bad thing: Verbal qautonomic response dissociation and midlife conjugal bereavement. *Journal of Personality and Social Psychology, 69,* 975–989. doi:10.1037/0022-3514.69.5.975

Bonanno, G. A., & Mancini, A. D. (2012). Beyond resilience and PTSD: Mapping the heterogeneity of responses to potential trauma. *Psychological Trauma: Theory, Research, Practice, and Policy, 4,* 74–83.

Bonanno, G. A., Mihalecz, M. C., & LeJeune, J. T. (1999). The core emotion themes of conjugal loss. *Motivation & Emotion, 23,* 175–201. doi:10.1023/A:1021398730909

Bonanno, G. A., Neria, Y., Mancini, A., Coifman, K. G., Litz, B., & Insel, B. (2007). Is there more to complicated grief than depression and posttraumatic stress disorder? A test of incremental validity. *Journal of Abnormal Psychology, 116,* 342–351. doi:10.1037/0021-843X.116.2.342

Bonanno, G. A., Wortman, C. B., Lehman, D. R., Tweed, R. G., Haring, M., Sonnega, J., . . . Nesse, R. M. (2002). Resilience to loss and chronic grief: a prospective study from preloss to 18-months postloss. *Journal of Personality and Social Psychology, 83,* 1150.

Bonanno, G. A., Wortman, C. B., & Nesse, R. M. (2004). Prospective patterns of resilience and maladjustment during widowhood. *Psychology and Aging, 19,* 260–271. doi:10.1037/0882-7974.19.2.260

Bullock, A. B., & Bonanno, G. A. (2013). Attentional bias and complicated grief: A dot-probe task with emotional faces. *Journal of Experimental Psychopathology, 4,* 194–207. doi:10.5127/jep.020411

Butler, E. A., Egloff, B., Wlhelm, F. H., Smith, N. C., Erickson, E. A., & Gross, J. J. (2003). The social consequences of expressive suppression. *Emotion, 3,* 48–67. doi:10.1037/1528-3542.3.1.48

Campbell-Sills, L., Barlow, D. H., Brown, T. A., & Hofmann, S. G. (2006). Effects of suppression and acceptance on emotional responses of individuals with anxiety and mood disorders. *Behaviour Research and Therapy, 44,* 1251–1263. doi:10.1016/j.brat.2005.10.001

Capps, L., & Bonanno, G. A. (2000). Narrating bereavement: Thematic and grammatical predictors of adjustment to loss. *Discourse Processes, 30*(1), 1–25. doi:10.1207/S15326950dp3001_01

Cohn, J. F., Ambadar, Z., & Ekman, P. (2007). Observer-based measurement of facial expression with the facial action coding system. In J. A. Coan & J. J. B. Allen (Eds.), *The handbook of emotion elicitation and Assessment* (pp. 203–221). New York, NY: Oxford University Press.

Coifman, K. G., & Bonanno, G. A. (2009). *Emotion context sensitivity in adaptation and recovery. Emotion regulation in psychopathology*. New York, NY: Guilford Press.

Coifman, K. G., & Bonanno, G. A. (2010). When distress does not become depression: Emotion context sensitivity and adjustment to bereavement. *Journal of Abnormal Psychology, 119,* 479–490. doi:10.1037/a0020113

Coifman, K. G., Bonanno, G. A., & Rafaeli, E. (2007). Affect dynamics, bereavement and resilience to loss. *Journal of Happiness Studies, 8,* 371–392. doi:10.1007/s10902-006-9014-5

Coifman, K. G., Bonanno, G. A., Ray, R. D., & Gross, J. J. (2007). Does repressive coping promote resilience? Affective-autonomic response discrepancy during bereavement. *Journal of Personality and Social Psychology, 92,* 745.

Cole, P. M., Michel, M. K., & Teti, L. O. (1994). The development of emotion regulation and dysregulation: A clinical perspective. *Monographs of the Society for Research in Child Development, 59,* 73–102. doi:10.1111/j.1540-5834.1994.tb01278.x

Coyne, J. C. (1976). Depression and the response of others. *Journal of Abnormal Psychology, 85,* 186. doi:10.1037/0021-843X.85.2.186

Coyne, J. C., Wortman, C. B., Lehman, D. R., & Turnbull, J. (1985, August). *Support in close relationships: When love isn't enough*. Presented at the 93rd Annual American Psychological Association Convention, Los Angeles, CA.

Davidson, R. J. (2000). Affective style, psychopathology, and resilience: Brain mechanisms and plasticity. *American Psychologist, 55,* 1196–1214. doi:10.1037/0003-066X.55.11.1196

Davies, H., Schmidt, U., Stahl, D., & Tchanturia, K. (2011). Evoked facial emotional expression and emotional experience in people with anorexia nervosa. *International Journal of Eating Disorders, 44,* 531–539. doi:10.1002/eat.20852

Decety, J., & Chaminade, T. (2003). Neural correlates of feeling sympathy. *Neuropsychologia, 41,* 127–138. doi:10.1016/S0028-3932(02)00143-4

Eisenberg, N., Miller, P. A., Schaller, M., Fabes, R. A., Fultz, J., Shell, R., & Shea, C. L. (1989). The role of sympathy and altruistic personality traits in helping: A reexamination. *Journal of Personality, 57,* 41–67. doi:10.1111/j.1467-6494.1989.tb00760.x

Ekman, P. (1993). Facial expression and emotion. *American Psychologist, 48,* 384–392. doi:10.1037/0003-066X.48.4.384

Ekman, P., & Friesen, W. V. (1975). Unmasking the face: A guide to recognizing emotions from facial cues. Englewood Cliffs, NJ: Prentice Hall.

Ekman, P., Friesen, W. V., & Ellsworth, P. (1972). *Emotion in the human face: Guidelines for research and an integration of findings*. New York, NY: Pergamon Press.

Ekman, P., Friesen, W. V., & Hager, J. C. (2002). *Facial action coding system*: The Manual on CD ROM. Salt Lake City, UT: A Human Face.

Fraley, R. C., Waller, N. G., & Brennan, K. A. (2000). An item response theory analysis of self-report measures of adult attachment. *Journal of Personality and Social Psychology, 78,* 350–365. doi:10.1037/0022-3514.78.2.350

Fredrickson, B. L. (2001). The role of positive emotions in positive psychology: The broaden-and-build theory of positive emotions. *American Psychologist, 56,* 218–226. doi:10.1037/0003-066X.56.3.218

Gaebel, W., & Wölwer, W. (2004). Facial expressivity in the course of schizophrenia and depression. *European Archives of Psychiatry and Clinical Neuroscience, 254,* 335–342. doi:10.1007/s00406-004-0510-5

Gehricke, J.-G., & Shapiro, D. (2000). Reduced facial expression and social context in major depression: Discrepancies between facial muscle activity and self-reported emotion. *Psychiatry Research, 95,* 157–167. doi:10.1016/S0165-1781(00)00168-2

Gehricke, J.-G., & Shapiro, D. (2001). Facial and autonomic activity in depression: Social context differences during imagery. *International Journal of Psychophysiology, 41,* 53–64. doi:10.1016/S0167-8760(00)00181-1

Gottman, J. M., & Levenson, R. W. (2002). A two-factor model for predicting when a couple will divorce: Exploratory analyses using 14-year longitudinal data. *Family Process, 41,* 83–96. doi:10.1111/j.1545-5300.2002.40102000083.x

Gross, J. J., & John, O. P. (2003). Individual differences in two emotion regulation processes: Implications for affect, relationships, and well-being. *Journal of Personality and Social Psychology, 85,* 348–362. doi:10.1037/0022-3514.85.2.348

Gross, J. J., & Thompson, R. A. (2007). Emotion regulation: Conceptual foundations. In J. J. Gross (Ed.), *Handbook of emotion regulation* (pp. 3–21). New York, NY: Guilford Press.

Gruber, J., Eidelman, P., & Harvey, A. G. (2008). Transdiagnostic emotion regulation processes in bipolar disorder and insomnia. *Behaviour Research and Therapy, 46,* 1096–1100. doi:10.1016/j.brat.2008.05.004

Gruber, J., & Kring, A. M. (2008). Narrating emotional events in schizophrenia. *Journal of Abnormal Psychology, 117,* 520–533. doi:10.1037/0021-843X.117.3.520

Gupta, S., & Bonanno, G. A. (2011). Complicated grief and deficits in emotional expressive flexibility. *Journal of Abnormal Psychology, 120,* 635–643. doi:10.1037/a0023541

Hooley, J. M., Richters, J. E., Weintraub, S., & Neale, J. M. (1987). Psychopathology and marital distress: The positive side of positive symptoms. *Journal of Abnormal Psychology, 96,* 27–33. doi:10.1037/0021-843X.96.1.27

Hoover-Dempsey, K. V., Plas, J. M., & Wallston, B. S. (1986). Tears and weeping among professional women: In search of new understanding. *Psychology of Women Quarterly, 10*(1), 19–34.

Horowitz, M. J., Siegel, B., Holen, A., Bonanno, G. A., Milbrath, C., & Stinson, C. H. (1997). Diagnostic criteria for complicated grief disorder. *American Journal of Psychiatry, 154,* 904–910.

Jakobs, E., Manstead, A. S. R., Fischer, A. H., & others. (2001). Social context effects on facial activity in a negative emotional setting. *Emotion, 1,* 51–69. doi:10.1037/1528-3542.1.1.51

Kashdan, T. B., & Rottenberg, J. (2010). Psychological flexibility as a fundamental aspect of health. *Clinical Psychology Review, 30,* 865–878. doi:10.1016/j.cpr.2010.03.001

Keltner, D., & Bonanno, G. A. (1997). A study of laughter and dissociation: distinct correlates of laughter and smiling during bereavement. *Journal of personality and social psychology, 73,* 687.

Keltner, D., & Haidt, J. (1999). Social functions of emotions at four levels of analysis. *Cognition & Emotion, 13,* 505–521. doi:10.1080/026999399379168

Kring, A. M. (2008). Emotion disturbances as transdiagnostic processes in psychopathology. In M. Lewis, J. M. Haviland-Jones, & L. F. Barrett (Eds.), *Handbook of emotion* (pp. 691–705). New York, NY: Guilford Press.

Kring, A. M. (2010). The future of emotion research in the study of psychopathology. *Emotion Review, 2,* 225–228. doi:10.1177/1754073910361986

Kring, A. M., Kerr, S. L., Smith, D. A., & Neale, J. M. (1993). Flat affect in schizophrenia does not reflect diminished subjective experience of emotion. *Journal of Abnormal Psychology, 102,* 507–517. doi:10.1037/0021-843X.102.4.507

Kring, A. M., & Moran, E. K. (2008). Emotional response deficits in schizophrenia: Insights from affective science. *Schizophrenia Bulletin, 34,* 819–834. doi:10.1093/schbul/sbn071

Kring, A. M., & Neale, J. M. (1996). Do schizophrenic patients show a disjunctive relationship among expressive, experiential, and psychophysiological components of emotion? *Journal of Abnormal Psychology, 105,* 249. doi:10.1037/0021-843X.105.2.249

Lee, V., & Wagner, H. (2002). The effect of social presence on the facial and verbal expression of emotion and the interrelationships among emotion components. *Journal of Nonverbal Behavior, 26,* 3–25.

Lehman, D. R., Ellard, J. H., & Wortman, C. B. (1986). Social support for the bereaved: Recipients' and providers' perspectives on what is helpful. *Journal of Consulting and Clinical Psychology, 54,* 438–446. doi:10.1037/0022-006X.54.4.438

Lichtenthal, W. G., Cruess, D. G., & Prigerson, H. G. (2004). A case for establishing complicated grief as a distinct mental disorder in DSM-V. *Clinical Psychology Review, 24,* 637–662. doi:10.1016/j.cpr.2004.07.002

Mauss, I. B., Levenson, R. W., McCarter, L., Wilhelm, F. H., & Gross, J. J. (2005). The tie that binds? Coherence among emotion experience, behavior, and physiology. *Emotion, 5,* 175–190. doi:10.1037/1528-3542.5.2.175

Messinger, D. S., Fogel, A., & Dickson, K. L. (2001). All smiles are positive, but some smiles are more positive than others. *Developmental Psychology, 37,* 642–653. doi:10.1037/0012-1649.37.5.642

Ong, A. D., Fuller-Rowell, T. E., Bonanno, G. A., & Almeida, D. M. (2011). Spousal loss predicts alterations in diurnal cortisol activity

through prospective changes in positive emotion. *Health Psychology, 30,* 220–227. doi:10.1037/a0022262

Pennebaker, J. W., & Chung, C. K. (2007). Expressive writing, emotional upheavals, and health. *Foundations of Health Psychology,* 263–284.

Prigerson, H. G., Horowitz, M. J., Jacobs, S. C., Parkes, C. M., Aslan, M., Goodkin, K., . . . Maciejewski, P. K. (2009). Prolonged grief disorder: Psychometric validation of criteria proposed for DSM-V and ICD-11. *PLoS Medicine, 6,* e1000121.

Reed, L. I., Sayette, M. A., & Cohn, J. F. (2007). Impact of depression on response to comedy: A dynamic facial coding analysis. *Journal of Abnormal Psychology, 116,* 804. doi:10.1037/0021-843X.116.4.804

Renneberg, B., Heyn, K., Gebhard, R., & Bachmann, S. (2005). Facial expression of emotions in borderline personality disorder and depression. *Journal of Behavior Therapy and Experimental Psychiatry, 36,* 183–196. doi:10.1016/j.jbtep.2005.05.002

Rottenberg, J., & Gotlib, I. H. (2004). Socioemotional functioning in depression. In M. Power (Ed.), *Mood disorders: A handbook of science and practice* (pp. 61–77). New York, NY: Wiley.

Rottenberg, J., Gross, J. J., & Gotlib, I. H. (2005). Emotion context insensitivity in major depressive disorder. *Journal of Abnormal Psychology, 114,* 627. doi:10.1037/0021-843X.114.4.627

Rottenberg, J., Kasch, K. L., Gross, J. J., & Gotlib, I. H. (2002). Sadness and amusement reactivity differentially predict concurrent and prospective functioning in major depressive disorder. *Emotion, 2,* 135–146. doi:10.1037/1528-3542.2.2.135

Rottenberg, J., & Vaughan, C. (2008). Emotion expression in depression: Emerging evidence for emotion context-insensitivity. In J. J. M. Vingerhoets, I. Nyklicek, & J. Denollet (Eds.), *Emotion regulation* (pp. 125–139). New York, NY: Springer. doi:10.1007/978-0-387-29986-0_8

Sabourin, S., Valois, P., & Lussier, Y. (2005). Development and validation of a brief version of the dyadic adjustment scale with a nonparametric item analysis model. *Psychological Assessment, 17,* 15–27. doi:10.1037/1040-3590.17.1.15

Scherer, K. R., & Ellgring, H. (2007). Multimodal expression of emotion: Affect programs or componential appraisal patterns. *Emotion, 7,* 158–171. doi:10.1037/1528-3542.7.1.158

Shrout, P. E., & Fleiss, J. L. (1979). Intraclass correlations: Uses in assessing rater reliability. *Psychological Bulletin, 86,* 420–428. doi:10.1037/0033-2909.86.2.420

Sibley, C. G., Fischer, R., & Liu, J. H. (2005). Reliability and validity of the revised experiences in close relationships (ECR-R) self-report measure of adult romantic attachment. *Personality and Social Psychology Bulletin, 31,* 1524–1536. doi:10.1177/0146167205276865

Sloan, D. M., Strauss, M. E., Quirk, S. W., & Sajatovic, M. (1997). Subjective and expressive emotional responses in depression. *Journal of Affective Disorders, 46,* 135–141. doi:10.1016/S0165-0327(97)00097-9

Stroebe, M., & Schut, H. (1999). The dual process model of coping with bereavement: Rationale and description. *Death Studies, 23,* 197–224. doi:10.1080/074811899201046

Stroebe, M. S., Hansson, R. O., Stroebe, W., & Schut, H. (2001). *Handbook of bereavement research: Consequences, coping, and care.* Washington, DC: American Psychological Association. doi:10.1037/10436-000

Stroebe, M. S., & Stroebe, W. (1991). Does "grief work" work? *Journal of Consulting and Clinical Psychology, 59,* 479–482. doi:10.1037/0022-006X.59.3.479

Stroebe, M., Stroebe, W., Schut, H., Zech, E., & Van den Bout, J. (2002). Does disclosure of emotions facilitate recovery from bereavement? Evidence from two prospective studies. *Journal of Consulting and Clinical Psychology, 70,* 169–178. doi:10.1037/0022-006X.70.1.169

Tellegen, A., Watson, D., & Clark, L. A. (1988). Development and validation of brief measures of positive and negative affect: The PANAS scales. *Journal of Personality and Social Psychology, 54,* 1063–1070. doi:10.1037/0022-3514.54.6.1063

Tooby, J., & Cosmides, L. (1990). The past explains the present: Emotional adaptations and the structure of ancestral environments. *Ethology and Sociobiology, 11,* 375–424. doi:10.1016/0162-3095(90)90017-Z

Wagner, A. W., Roemer, L., Orsillo, S. M., & Litz, B. T. (2003). Emotional experiencing in women with posttraumatic stress disorder: Congruence between facial expressivity and self-report. *Journal of Traumatic Stress, 16,* 67–75. doi:10.1023/A:1022015528894

Walker, W. R., Skowronski, J., Gibbons, J., Vogl, R., & Thompson, C. (2003). On the emotions that accompany autobiographical memories: Dysphoria disrupts the fading affect bias. *Cognition & Emotion, 17,* 703–723. doi:10.1080/02699930302287

Westphal, M., Seivert, N. H., & Bonanno, G. A. (2010). Expressive flexibility. *Emotion, 10,* 92–100. doi:10.1037/a0018420

Wortman, C. B., & Silver, R. C. (1989). The myths of coping with loss. *Journal of Consulting and Clinical Psychology, 57,* 349–357. doi:10.1037/0022-006X.57.3.349

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